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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,001	01/16/2002	Markus Doetsch	L&L-10206	6339

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EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 03/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,001

Applicant(s)

DOETSCH ET AL

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/16/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Objections

1. Claims 7-11 are objected to because of the following informalities: in claim 7, line 18 replace "adders" with --adder--. Appropriate correction is required.

Likewise claims 8-11 are objected because they depend on a base objected claim.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S.

Patent No 6,289,041 in view of Shou et al U.S. Patent No 5,974,038.

As per claim 1, Krasner discloses a method of synchronizing mobile radio receivers in a mobile radio system, wherein a first synchronization channel with a first frequency is provided for transmitting a signal with a code that is know to the mobile radio receivers and to base stations of the mobile radio system and wherein a transmission from a base station to a mobile radio receiver delays the signal by an unknown time period and the first frequency is shifted by the transmission to a second frequency, the method comprises the following steps: splitting a received signal into a

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real part and an imaginary part signal (see figs.2, 4, 6 elements 202, 402, 602 and col.3, lines 57-58 and col.5, lines 40, 52); sampling the real part signal and the imaginary part signal to form sampled signals (see figs. 4, 6 elements 406, 606 and col.3, lines 61-62 and col.5, lines 42-44, 50-67 and col.6, lines 1-15); matched filter (see figs. 2, 4, 6a elements 204 , 408 and 410, and col.3, line 56 and col.5, lines 5-6, 47 and col.6, lines 60-62). Note that matched filter is well Known in the art to perform correlation process, therefore the matched filter of Krasner is functionally equivalent to the claimed (digitally filtered each sampled signal to correlate the sampled signal to the know code and to form filtered signals) ; squaring each filtered signal to form squared signals (see figs.2, 4 elements 206, 416 and col.4, line 14 and col.5, line 7 and col.6, lines 45, 66-67); determining a maximum signal level from the squared signals (see figs. 2, 4 elements 208, and 2nd summer and col.4, line 22 and col.5, lines 7-8); loop integrator (see figs.2, 4 elements 210, 426 and col.4, lines 16-28 and col.5, lines 7-19) is functionally equivalent to the claimed (estimating the unknown time period with the maximum signal level determined in the determining steps); digital frequency translate (see fig.4 element 404 and col.5, lines 40-50 and col.7, lines 55-56) is functionally equivalent to the claimed (fine-tuning the second frequency to the first frequency).

However Krasner does not teach despreading the received with the known code and taking into account the time period estimated in the estimating steps.

Shou et al teaches despreading the received with the known code and taking into account the time period estimated in the estimating steps (see fig.2 element 30 and col.6, lines 11-67).

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It would have been obvious to one of ordinary skill in the art to implement the despreding of Shou into Krasner as to correlate the receive signals with different phase shifted of the same spreading code for acquiring both the received spread spectrum signal as taught by Shou (see col.2, lines 10-1, 54).

As per claim 2, the method of Krasner does include delaying the sampled values of each signal (see figs 6a, 6b elements 608, 622 and col.10, lines 7, 36-37 and col.13, line 23).

As per claim 3, the method of Krasner does include multiplying the different delayed sampled (see figs. 6a, 6b elements 612, 624 and col.8, line 40).

As per claim 4, the method of Krasner does include pairs of identical coefficients (see fig. 12 element 1206 and col.16, line 19).

As per claim 5, the method of Krasner does include code sequence chips (see col.3, lines 30-35).

As per claim 6, the method of Krasner does include sampling each signal (see fig.4 element 406).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

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(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 7-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Krasner U.S.

Patent No 6,289,041 B1.

As per claim 7, Krasner discloses a device for synchronizing mobile radio receivers in a mobile radio system having a first synchronization channel for transmitting a signal with a code that is know to all the mobile radio receivers and to all base stations of the mobile radio system comprising: input signal processing units in a mobile radio receiver for processing a received signal including a real part and an imaginary part signal (see figs.2, 4, 6 elements 202, 402, 602 and col.3, lines 57-58 and col.5, lines 40, 52; said input signal processing units generating sampled values (see figs. 4, 6 elements 406, 606 and col.3, lines 61-62 and col.5, lines 42-44, 50-67 and col.6, lines 1-15); a plurality of delay circuits (see figs. 6a and 6b element 608, 622 and col.10, lines 7, 36-37 and col.13, line 23) connected in series with said input signal processing units for receiving an input signal and outputting an output signal, said delay circuits receiving the sampled values and matched filter (see figs. 2, 4, 6a elements 204 , 408 and 410, and col.3, line 56 and col.5, lines 5-6, 47 and col.6, lines 60-62). Note that matched filter is well Known in the art to perform correlation process, therefore the matched filter of Krasner is functionally equivalent to the claimed (correlating) the real part and the imaginary part signal with the known code;

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multipliers (see figs. 6a, 6b elements 612, 624 and col.8, lines 34, 40) connected to receive the input signal and the output signal of each delay circuit and multiplying a supplied signal with a coefficient; first adder (see fig.6a element 610 and col.8, line 34) connected to receive an output signal from each said multiplier and each outputting a summed signal; squaring each elements having an input connected to receive the summed signal from a respective said first adder and outputting a squared signal (see figs. 2, 4 elements 206, 416 and col.5, line 7 and col.6, line 45); a second adder (see figs. 2, 4 element 208 and col.4, line 22) connected to the squared signals from said squaring elements.

As per claim 8, the device of Krasner inherently includes a low pass filter, a sampler and a memory.

As per claim 9, the device of Krasner does include different number of coefficient (see fig.6a elements W1-W1023).

As per claims 10 and 11, the device of Krasner does include multipliers (see figs. 6a, 6b elements 612, 624 and col.8, line 40).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Uchida et al U.S. Patent No 6,301316 B1 teaches a frequency sharing mobile communication system.

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Fuchs et al U.S. Patent No 6,510,387 B2 teaches a correction of Pseudo-range model.

Aman et al U.S. Patent No 6,192,088 B1 teaches a carrier recovery system.

Wang U.S. Patent 6,404,758 B1 teaches a system and method for achieving slot synchronization..

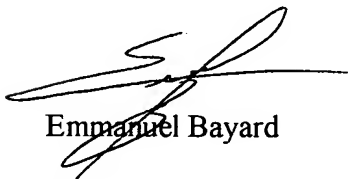
Furukawa et al U.S. Patent No 6,414,985 B1 teaches for determining reference phase in radio...

Schweickert et al U.S. Patent No 6,487,260 B1 teaches a method and apparatus for efficient correlation detection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham, can be reached on (703) 305-4378. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Emmanuel Bayard

Patent Examiner

March 3, 2003

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